Bridging the gap:

market readiness and barriers in Europe's transition to electric heavy-duty transport

Power to go further

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Executive summary

The transition to electric road freight in Europe is underway and entering a decisive early deployment phase. Electric trucks are now commercially available across multiple segments, including long-haul operations, and a first wave of dedicated public charging hubs is being rolled out along key freight corridors. Early adopters across the logistics sector are demonstrating that electric heavy duty vehicles (eHDV) can operate reliably and competitively in daily operations.

However, market development remains highly uneven across Europe. A limited group of frontrunner countries has successfully established favourable conditions for early adoption, while many others lag behind due to insufficient policy support and slower infrastructure deployment. This divergence risks creating a fragmented European market, with negative implications for cross-border transport, infrastructure investment, and industrial competitiveness.

This report assesses 14 European markets and finds a strong correlation between eHDV uptake and the presence of coherent national policy frameworks. While European regulation provides important long-term signals, national policy measures remain the key drivers of near-term market activation. Countries that combine targeted purchase support, favourable energy price structures, CO_2-differentiated road tolling, and accessible charging infrastructure consistently show higher electrification rates and faster market development.

A detailed analysis of Germany, the Netherlands, and Sweden confirms that policy design directly determines total cost of ownership (TCO) outcomes. In leading markets, eHDVs are already cost-competitive across a growing range of use cases. Strong operational incentives, particularly toll exemptions or CO_2-based tolling, play a decisive role in unlocking long-haul applications, while purchase subsidies remain essential to overcome the upfront cost barrier in the early phase.

At the same time, the rollout of charging infrastructure is accelerating but remains uneven. Delays in permitting and grid connections, as well as limited visibility on future demand, continue to constrain investment and slow down deployment in other regions. Looking ahead, the key challenge is to move from early adoption to large-scale market uptake. This requires a coordinated and predictable policy framework that reduces investment risk and ensures consistent conditions across Member States. Four priorities stand out:

- Activate demand through targeted, simple, and multi-year purchase support, complemented by zero-emission procurement incentives
- Strengthen operational incentives by fully implementing CO_2-differentiated road tolling and maintaining European instruments such as ETS II
- Accelerate infrastructure deployment through streamlined permitting, faster grid connections, and continued public funding support
- De-risk investment by introducing guarantee mechanisms and strengthening financing frameworks for both fleets and infrastructure

With the right policy framework in place, Europe can now move to a self-sustaining, large-scale rollout of electric heavy-duty transport, delivering on its climate objectives while strengthening the competitiveness and resilience of its logistics sector.

Context: looking at electrification in a critical moment

This paper was developed before and during the current energy crisis, with data collected prior to the recent surge in energy prices. If anything, this makes its findings even more relevant today.

Europe's reliance on imported fossil fuels has never been clearer. Electrified logistics can offer a way out: a clear path to energy security, lower costs, reduced emissions, and more resilient supply chains that benefit the wider economy. Scaling both vehicles and charging infrastructure is urgent.

Policymakers now hold the levers. Predictable, long-term incentives, operational cost reductions, and robust infrastructure support can turn early adopters into mainstream fleets this decade. Acting decisively in the coming weeks and months is the only way to secure a cleaner, more resilient, and economically competitive freight system, one that strengthens Europe's industries, protects consumers, and underpins sustainable growth.

Introduction

Across Europe, the transition to electric heavy-duty (eHDV) road transport is beginning to take hold. In a first group of frontrunner countries, the market has already moved beyond the pilot phase, with a visible acceleration in the deployment of electric trucks. This progress is supported by clear regulatory frameworks, targeted public incentives, and the steady expansion of charging infrastructure. Together, these elements are creating the conditions for fleet operators to scale up adoption with increasing confidence and predictability.

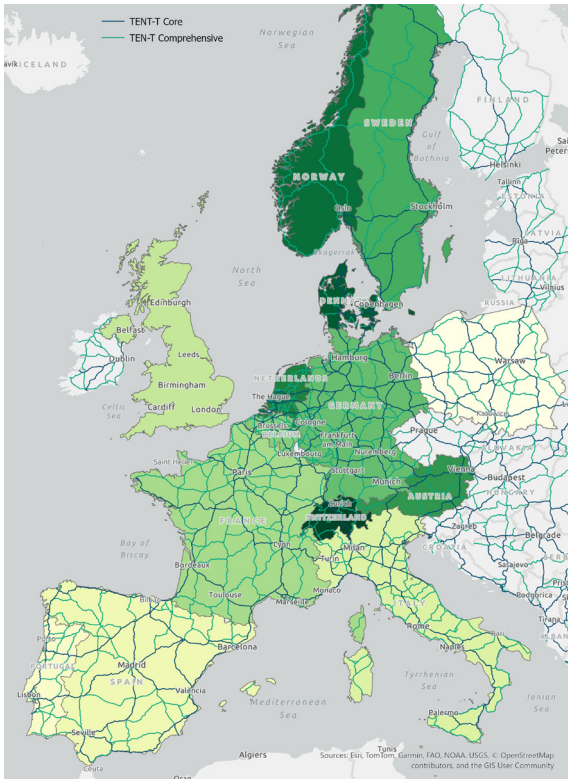
Where these enabling conditions are in place, the market response is already visible. A growing number of logistics companies are demonstrating stable, reliable, and economically viable use cases in real-world operations. Early adopters are showing that electric freight is commercially attractive across an expanding range of use-cases, from regional distribution to long-haul transport, while meeting operational requirements and delivering competitive economics.

By contrast, several other EU member states remain at the very beginning of this transformation. Limited policy momentum, a lack of market incentives, and slower infrastructure deployment continue to constrain wider uptake.

As a result, the pace of electrification across Europe remains uneven, with significant differences emerging between national markets.

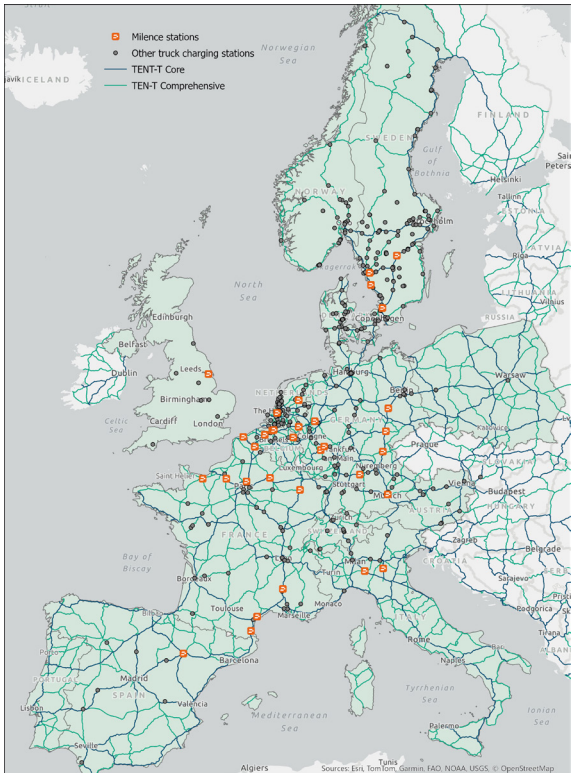
Despite the manifestation of these regional frontrunners, most EU wide projections still fall short of the vehicle deployment levels required to meet the Union's climate and competitiveness objectives. Market adoption has not yet reached a selfreinforcing dynamic in which growing fleet demand, expanding infrastructure, scaling vehicles production and declining total cost of ownership continuously reinforce one another. Instead, the European truck market remains in an early phase of structural transformation, with substantial disparities between national trajectories.

eHDV (>16t) registrations in 14 Milence focus countries in 2025 and Q4 (absolute numbers and share of total new truck registrations)



New registrations 2025-Q4	eTruck % 2025 Q4	eTruck % 2025	eTruck 2025 Q4	eTruck 2025
Austria	12.2%	5.9%	191	405
Belgium	3.5%	2.5%	61	191
Denmark	15.1%	6.7%	110	277
France	2.9%	2.5%	293	861
Germany	3.8%	2.7%	498	1398
Italy	0.7%	0.3%	38	79
Netherlands	14.3%	9.4%	322	878
Norway	14.7%	10.9%	113	388
Poland	0.2%	0.2%	16	52
Portugal	0.3%	0.2%	5	9
Spain	0.4%	0.5%	32	138
Sweden	9.5%	8.5%	117	378
Switzerland	17.6%	15.3%	151	524
United Kingdom	1.7%	1.3%	166	461
Total	**3.3%**	**2.5%**	**2,133**	**6,039**

truck-suitable[1] charging connectors in 14 Milence focus countries (snapshot February 2026)



Country	Sites	Charge-points
Austria	13	60
Belgium	11	82
Denmark	36	128
France	55	199
Germany	59	274
Italy	7	29
Netherlands	72	316
Norway	30	106
Poland	3	6
Portugal	-	-
Spain	8	33
Sweden	114	395
Switzerland	13	59
United Kingdom	6	54
Total	**429**	**1,744**

1 Charge points (connectors) with a minimum capacity of 300 kW, accessible to trucks without trailer decoupling and allowing for forward entry and exit.

At the same time, the rollout of public charging infrastructure suitable for trucks along major freight corridors is expanding rapidly, laying the foundation for broader fleet electrification.

The challenge now is to move from pioneering deployments to a true mass-market transition. This requires a targeted set of measures that can accelerate adoption, reduce remaining uncertainties for fleet operators, and create the conditions for large-scale investment in both vehicles and truck dedicated infrastructure. Implementation of existing policy measures will drive the shift from incremental growth to exponential uptake.

Against this backdrop, this paper assesses the readiness of European markets to support the transition to electric trucks. It examines the policy instruments, incentive structures, and implementation strategies applied across both frontrunner and lagging Member States, identifying the factors that most effectively drive market development.

By comparing approaches across different national contexts, the paper aims to highlight a set of transferable best practices that can help accelerate the transition across the European Union. The analysis covers 14 countries in total, with a particular focus on three key markets: Germany, the Netherlands, and Sweden.


3

Evaluation of policy enablers for a successful eHDV ramp up

The transition to electric heavy-duty vehicles in Europe is fundamentally anchored in the European regulatory framework, most notably the CO_2 emission performance standards for truck manufacturers. These standards provide a clear and binding long-term signal, which has already accelerated the development and market introduction of electric truck models. Today, several eHDV models offer full long-haul capabilities with operational performance that increasingly matches that of conventional diesel trucks in day-to-day logistics operations.

Looking ahead, additional European instruments will further reinforce this transition. In particular, the upcoming Emissions Trading System for road transport and buildings (ETS II) is expected to strengthen the long-term total cost of ownership advantage of eHDVs by gradually increasing the cost of fossil fuels. While the system is now expected to enter into force in 2028, its impact will materialise progressively over time. As such, ETS II will primarily act as a medium- to long-term structural driver, rather than a short-term accelerator of market uptake.

ETS II: A critical lever for eHDV cost competitiveness

A key European policy influencing the TCO of heavy-duty vehicles is the second European Emissions Trading System (ETS II), whose implementation has been postponed to 2028 following negotiations on the EU's 2040 climate package. While the one-year delay has a minimal effect on lifecycle TCO calculations, reducing diesel fuel-related carbon costs by only about €0.0065 per km[2] over a five-year operational life, it is crucial to recognise that ETS II remains a structural driver for eHDV adoption. Once in force, it will gradually reinforce the operational cost advantage of electric trucks over diesel by internalising the carbon cost of fossil fuels.

In practice, ETS II contributes up to €0.04 per km[3] in improved TCO for eHDVs in certain use cases, providing a meaningful economic signal for fleet operators considering long-term electrification investments. This makes it a real lever for accelerating the market transition.

For these reasons, it is essential that ETS II be implemented as planned and not delayed or weakened. Sending a signal that ETS II could be abandoned would risk undermining regulatory certainty, eroding investor confidence, and slowing the transition to electric road freight.

2 Using the assumptions applied in our modelling – an ETS II fuel cost add-on of €0.13 per litre in the first year, a diesel consumption of 0.25 litres per kilometre, and a five-year operational life – the avoided cost for a diesel HDV amounts to: €0.13 × 0.25 / 5 ≈ €0.0065 per kilometre.

3 The calculated TCO benefit of up to €0.04/km from ETS II is based on typical long-haul utilisation assumptions of approx. 100,000-120,000 km per year. For higher-utilisation operations such as multi-shift logistics with annual mileages of 180,000-200,000 km or beyond, the absolute impact of ETS II on TCO is significantly greater. Consequently, any delay in ETS II implementation disproportionately reduces the economic advantage of eHDVs in these high-intensity use cases.

In the near term, national policy measures - often the implementation of European rules - remain essential to support the early phase of the market ramp-up. Targeted incentives and supportive regulatory frameworks implemented at Member State level play a critical role in reducing the initial cost gap between electric and diesel trucks, providing investment certainty for fleet operators, and enabling the first wave of large-scale deployments.

Importantly, these incentives are required primarily during this initial scale-up phase. As vehicle production increases, technologies mature, and infrastructure expands, the TCO of electric trucks is expected to improve structurally across use-cases. Over time, eHDVs will offer increasingly competitive and more cost-effective transport solutions compared to diesel. Well-designed policy support today is therefore essential to unlock this long-term transition, enabling the market to move from early adoption to a self-sustaining growth trajectory.

Several key policy enablers stand out.
First national energy price structures play a central role in determining the competitiveness of electric trucks. The relative level of electricity prices, including taxes, grid tariffs, and levies, compared with diesel prices at the pump is a decisive factor in determining operating costs. Countries with favourable electricity price structures typically offer a more attractive operating environment for eHDVs.

In addition, tradable renewable energy certificates for charging - derived from the Renewable Energy Directive (RED III) - can further improve the business case by generating additional revenue streams or lowering effective charging costs. However, these mechanisms are not yet implemented across all Member States, and the value of such certificates varies considerably between countries. In the absence of ETS II in the short term, national diesel taxation regimes and broader fossil fuel price levels remain equally important in determining relative cost competitiveness.

Second, many Member States have introduced purchase or leasing subsidies to address the higher upfront investment costs of electric trucks. Additional investment costs associated with fleet transformation also arise from the installation of depot charging infrastructure. In several countries, support schemes are available for private chargers. Both schemes are particularly important during the early phase of market development, as they help lower financial barriers for fleet operators and support initial market uptake. Successful subsidy schemes are simple, unbureaucratic, and quickly accessible, and minimise administrative burden for operators. At the same time, they should ideally provide multi-year visibility rather than one-off funding rounds. Stop-start schemes risk market distortions, including pre-buy effects, where investment decisions are driven by funding windows rather than operational needs. Predictable, long-term support enables operators to plan strategically, scale adoption, and fully capture emerging TCO advantages.

Third, operational cost incentives can significantly influence fleet investment decisions. CO_2-differentiated road tolling and, still in (too) few countries, full or partial toll exemptions for eHDVs, provide strong economic leverage. Where Member States have implemented toll reductions beyond the minimum levels set under the Eurovignette Directive, these measures can significantly improve the TCO of electric trucks over their operational lifetime. As such, enhanced toll differentiation stands out as one of the most effective and immediately impactful policy levers to accelerate market uptake.

Finally, the availability and accessibility of dedicated truck charging infrastructure is a critical enabling factor. Fleet operators require confidence that vehicles can be charged reliably along major freight corridors and in logistics hubs. While the deployment of dedicated truck charging infrastructure is accelerating across Europe, progress remains uneven between Member States. In several countries, national support programmes are playing an important role in accelerating the rollout of public charging infrastructure by reducing upfront investment costs.

Previous market analysis by Milence shows that in more advanced markets, existing public charging capacity could already support a significantly larger eHDV fleet than is currently on the road. However, uneven infrastructure deployment continues to create regional disparities in charging accessibility, which in turn affects market confidence and investment decisions.

An assessment of these key measures across 14 focus countries forms the basis for the comparative scoring presented in the following section, identifying national frontrunners, emerging markets, and countries where the transition remains at an early stage.

eHDV adoption in Q4 2025 aligned with key policy levers (March 2026)

	Electrification rate 2025 Q4		Per km energy differential		Purchase subsidy		Km road toll differential		% of AFIR 2030 target power installed	
Austria	🟢	12.2%	🟡	€ 0.23	🟢	1.0	🟢	€ 0.25	🔴	5%
Belgium	🟡	3.5%	🟡	€ 0.19	🔴	0.0	🟢	€ 0.17	🔴	4%
Denmark	🟢	15.1%	🟡	€ 0.16	🟢	1.0	🟡	€ 0.06	🟢	21%
France	🟡	2.9%	🟡	€ 0.16	🟢	1.0	🔴	€ 0.00	🔴	4%
Germany	🟡	3.8%	🔴	€ 0.11	🔴	0.0	🟢	€ 0.32	🔴	3%
Italy	🔴	0.7%	🔴	€ 0.10	🟡	0.5	🔴	€ 0.00	🔴	1%
Netherlands	🟢	14.3%	🟡	€ 0.19	🟢	1.0	🟢	€ 0.14	🟢	27%
Norway	🟢	14.7%	🟢	€ 0.30	🟢	1.0	🔴	€ 0.00	🟡	11%
Poland	🔴	0.2%	🟡	€ 0.19	🔴	0.0	🔴	€ 0.00	🔴	0%
Portugal	🔴	0.3%	🟢	€ 0.26	🔴	0.0	🔴	€ 0.00	🔴	0%
Spain	🔴	0.4%	🟡	€ 0.16	🔴	0.0	🔴	€ 0.00	🔴	1%
Sweden	🟡	9.5%	🟡	€ 0.21	🟡	0.5	🔴	€ 0.00	🟡	14%
Switzerland	🟢	17.6%	🟢	€ 0.34	🔴	0.0	🟢	€ 0.96	🔴	10%
United Kingdom	🔴	1.7%	🔴	€ 0.09	🟢	1.0	🔴	€ 0.00		n.a.

Reader's guide to the country comparison table

A traffic-light system is used to illustrate relative progress across markets. Overall transition readiness is primarily assessed based on the electrification rate of newly registered trucks in Q4 2025, while the other indicators capture the key enabling conditions that help explain differences in market performance between countries.

The electrification rate measures the share of newly registered trucks that were electric in Q4 2025, based on ACEA registration data. Countries marked in green have electrification rates above 10%. Countries around the European average are marked in yellow, while red indicates markets where electric truck uptake remains limited.

The per-kilometre energy cost differential compares the variable energy costs of electric and diesel trucks. The value shown reflects the additional cost per kilometre for diesel trucks compared to electric trucks. The calculation assumes an efficiency of 1.1 kWh/km for electric trucks and 0.25 litres/km for diesel trucks, based on average diesel prices between March 2025 and February 2026 and average depot charging tariffs (combination of average electricity spot prices, volumetric grid fees and energy taxes). Across all countries analysed, electric trucks are cheaper to operate, although the advantage varies significantly, from approximately €0.10/km in Italy to €0.34/km in Switzerland.

The availability and size of purchase subsidies assesses whether governments provide financial support for companies purchasing or leasing electric trucks, including where relevant support for associated depot charging infrastructure.

The road toll differential per kilometre captures the impact of CO_2-based tolling systems. In several countries, diesel trucks face significantly higher toll rates than zero-emission vehicles. The value shown reflects the additional cost per kilometre for diesel trucks on toll roads compared to electric trucks.

The final indicator assesses charging infrastructure readiness relative to the 2030 targets set under the Alternative Fuels Infrastructure Regulation (AFIR) for heavy-duty vehicle charging along the TEN-T Core and Comprehensive Network[4]. It shows the percentage of required recharging power already installed in each country. Only truck-suitable charging locations accessible to vehicles with trailers and offering at least 300 kW per charging point are included.

The assessment reveals a clear geographic gradient. Northern and central European countries generally demonstrate more advanced policy frameworks and stronger market conditions for eHDV adoption, while a number of southern and eastern European markets are progressing more gradually. At the same time, important differences in policy design and implementation can also be observed within the group of leading countries.

Among the highest-scoring markets, a number of common success factors emerge. Most notably, the presence of CO_2-differentiated road tolling systems creates tangible and durable economic advantages for electric trucks, as seen in countries such as Austria, the Netherlands, and Switzerland. These mechanisms provide predictable long-term operating cost benefits and are particularly effective in supporting investment decisions for capital-intensive assets such as heavy-duty vehicles. In addition, many of these frontrunner countries are relatively compact in size, which facilitates faster infrastructure rollout and more concentrated early demand (regional use cases), further accelerating market development.

Beyond tolling, purchase subsidies continue to play a critical role in the early phase of market uptake. In countries such as Denmark and the Netherlands, these schemes have helped to bridge the upfront cost gap and reinforce emerging total cost of ownership advantages, thereby enabling initial scale-up. Energy price structures also remain a decisive factor. Norway stands out as a leading example, where low electricity prices translate into substantial operational savings and a particularly strong business case for electric trucks.

In the group of countries classified as "emerging markets," Germany illustrates that strong individual policy instruments can coexist with structural challenges. While highly supportive measures, such as a full toll exemption for electric trucks (with a >€0,3 per km eHDV benefit), are in place, the scale and geographic complexity of the national transport network make the timely rollout of charging infrastructure a critical factor for enabling nationwide electrification. This challenge is further compounded by lengthy and complex permitting procedures, as well as delays in grid connection processes, which can significantly slow down infrastructure deployment and create uncertainty for operators.

Countries in the "early-stage" category typically show a more limited presence or weaker implementation of the key enabling factors analysed in this report. In these markets, the absence of effective toll differentiation, limited financial support for vehicle acquisition, and still nascent charging infrastructure deployment combine to create less favourable conditions for large-scale eHDV adoption.

Overall, the analysis underscores that policy coherence across multiple instruments -rather than reliance on a single measure -is the most effective way to accelerate the market ramp-up of eHDVs. Countries that successfully combine demand-side incentives, favourable operating conditions, and infrastructure deployment are best positioned to move from early adoption to sustained market growth.

A more detailed, qualitative assessment of the policy enablers discussed in this chapter, including the specific design, scope, and implementation nuances of purchase subsidies and tolling schemes is provided in the Annex.

4 The indicator reflects full compliance with the 2030 AFIR targets and excludes the flexibility provisions that allow Member States to apply reduced requirements or exemptions for sections of the TEN-T Core and Comprehensive Network with lower average annual daily traffic (AADT). It also does not assess compliance with interim 2025 or 2027 targets, some of which have already been met or exceeded by certain Member States.

Deep dive Germany, The Netherlands and Sweden

Total Cost of Ownership, policy frameworks and early market experiences

Building on the high-level assessment of policy enablers across Europe, this section provides a detailed examination of how national policy measures influence the TCO of eHDVs compared with conventional diesel trucks in three key markets: Germany, the Netherlands, and Sweden. These countries illustrate different policy approaches, market conditions, and fleet characteristics.

It is important to emphasise that there is no one-size-fits-all solution for fleet electrification. While many transport operations can already transition to electric trucks, certain applications remain challenging. For example, freezer trailers have very high energy demands that require advanced battery capacity, whereas conventional refrigerated trailers can often operate electrically but face limitations due to a lack of standardised interfaces with the vehicle (ePTO). Other specialised applications such as fuel or liquid transport trucks often require additional onboard equipment and specific vehicle configurations, which can limit available space and flexibility for battery integration. Despite these challenges, a growing number of logistics operators are demonstrating that a wide variety of regional and long-haul use cases can be successfully electrified, provided the right combination of vehicle technology, operational planning, and supportive policy measures.

Beyond quantitative TCO modelling, this chapter examines how these measures are structured and implemented at the national level, highlighting which policies deliver the greatest economic impact for fleet operators and how they influence the timeline toward cost competitiveness.

The following figures provide a consolidated overview of projected TCO trajectories for eHDVs and diesel HDVs between 2026 and 2028, illustrating how evolving policy frameworks shape the competitiveness of electric trucks over time. Taken together, this analysis clarifies the conditions under which eHDVs achieve cost parity or a cost advantage, and demonstrates how well-designed national policies can directly accelerate or, in their absence, delay the adoption of zero-emission freight.

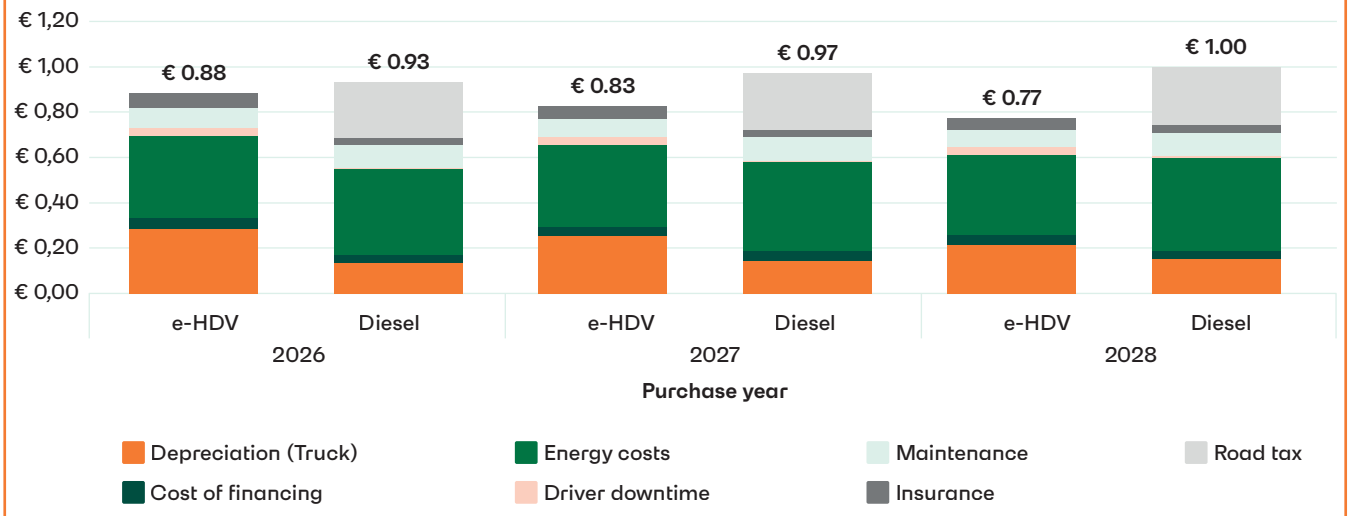
Disclaimer on TCO methodology
In this paper, total cost of ownership (TCO) is defined as the set of cost elements for which a meaningful difference exists between eHDVs and diesel trucks. The analysis therefore focuses on the cost categories that are most relevant for determining the economic tipping point in the transition.

Cost components such as trailer costs, vehicle washing, parking, and driver wages during driving time are excluded, as they are not drivetrain-specific and do not materially affect the relative comparison. Driver costs are only included where charging-related standing time creates a differential between eHDV and diesel operations.

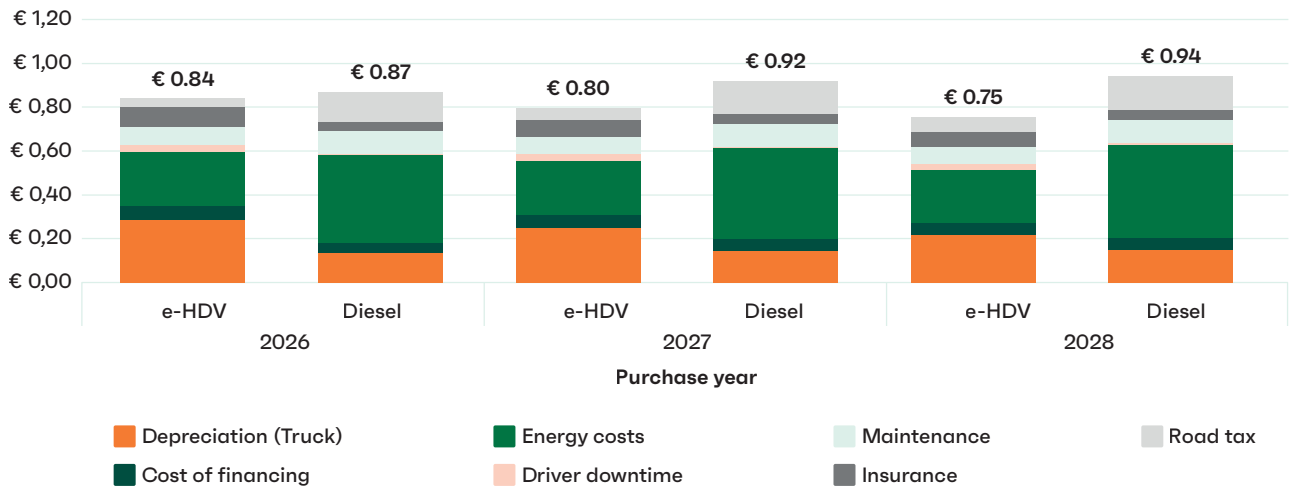
It is acknowledged that alternative TCO methodologies may adopt a broader scope by including these additional cost elements. However, such costs would increase the absolute cost base of both drivetrains by a similar magnitude. Under the assumptions and configurations applied in this analysis, the relative difference between the TCO of eHDVs and diesel trucks therefore remains unchanged and representative.

5 For a comprehensive understanding of the assumptions, methodology, and detailed results behind the TCO projections, we refer to the dedicated TCO Whitepaper for Germany, the Netherlands, and Sweden, which provides the full modelling background and country-specific analyses.
6 In the TCO analysis, depreciation is calculated based on the full purchase price and does not include purchase subsidies. Subsidy schemes are limited in scale and temporary, meaning they cannot support the entire market over time. Excluding them therefore provides a clearer view of the long term cost competitiveness of electric trucks.

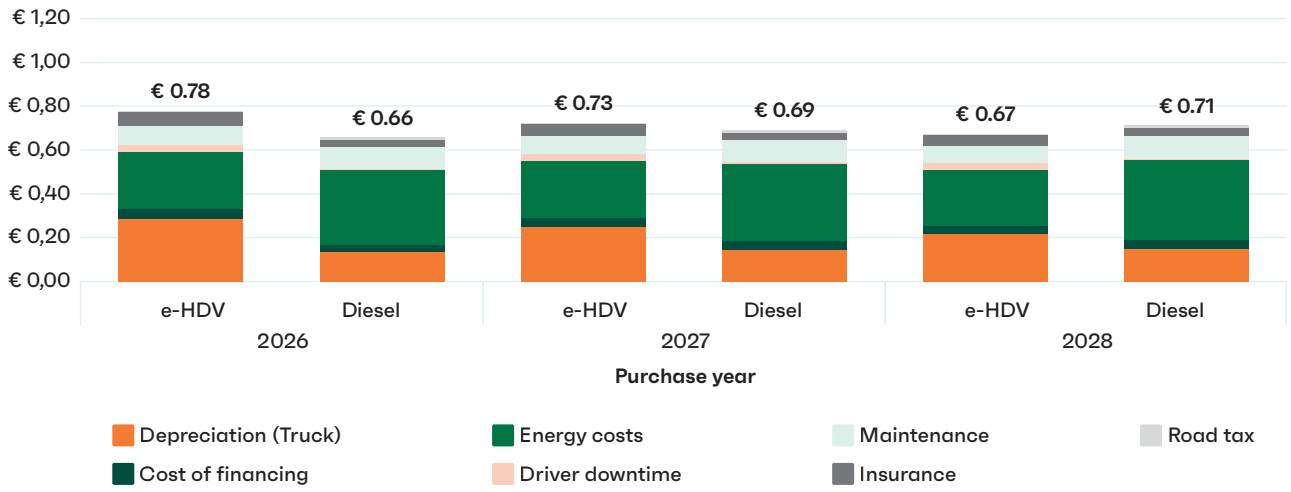
TCO per km - Long haul in Germany (update 2026)



TCO per km - Regional delivery in The Netherlands (update 2026)



TCO per km - Long haul in Sweden (update 2026)



Germany

Germany has traditionally been a key transit country, with long distance freight playing a central role in its transport system. The country boasts one of Europe's densest motorway and trunk road networks, including an Autobahn network exceeding 13,000 kilometres. As elsewhere, electrification is initially taking place on predictable and highly planable routes, resulting in a current (2025 Q4) eHDV registration rate of 3.8%. However, the distances covered on these routes are already substantial, reflected in the registration of the most recently introduced highrange eHDV models. Demand is driven not only by the retail sector but also by the automotive industry and its suppliers, which increasingly require low-carbon logistics in their procurement tenders. Traditional long-distance transit traffic remains largely non-electrified, with the exception of shorter cross-border flows to and from the Benelux region.

The most impactful policy instrument in Germany is the full exemption of eHDVs from highway tolls, recently extended until June 2031. This long-term regulatory clarity provides fleet operators with a stable and highly effective cost advantage, particularly for long-haul logistics where tolls represent a significant portion of operating expenses. In our TCO modelling, we assume that approximately 75% of long-distance truck operations occur on tolled road segments. Under the current tariff structure, a Euro VI diesel truck above 18 tonnes with four axles pays roughly €0.324 per kilometre, while zero-emission trucks remain fully exempt. Applied across tolled distances, this differential translates into an operational saving of approximately €0.24 per kilometre for eHDVs. Crucially, this cost advantage is now secured for at least the next five years, providing fleet operators with a stable long-term cost advantage and significantly improving the business case for electrification in Germany.

The Netherlands

Although relatively small in land area, the Netherlands is characterised by high population density and major logistics hubs, including one of Europe's largest seaports. This results in an exceptionally dense network of freight flows, supporting a highly dynamic logistics sector. The country has achieved an eHDV registration rate exceeding 14.3%, making it a genuine front-runner in Europe. Key drivers of this rapid electrification include the retail sector, which increasingly demands CO_2-neutral transport in its tenders, as well as sectors such as construction, where associated logistics are being electrified more frequently. Long-haul operations, particularly those originating from the major ports, are also seeing steadily increasing adoption of electric trucks.

In the Netherlands, the TCO for eHDVs becomes favourable as early as 2025 across several operational use cases, even without factoring in subsidies. This positive outlook is further reinforced by the upcoming distance-based and emissions-differentiated truck toll ("Vrachtwagenheffing"), scheduled to take effect in July 2026. The policy framework is also supported by the AanZET purchase subsidy, which proved highly popular: the €30 million budget for 2025 was fully allocated on the first day, and the €78 million available for 2026 was fully subscribed in two days. Additional funding rounds are expected in the coming years, financed in part through revenues from the Vrachtwagenheffing.

From a fleet operator perspective, the financial impact of the AanZET is substantial. For smaller operators, grants of up to €115,200 per vehicle effectively offset much of the depreciation cost differential between diesel and electric trucks. For larger operators, the maximum subsidy of €43,900 per vehicle does not entirely close the depreciation gap at the point of purchase. However, this gap gradually narrows over the operational life of the vehicle, with cost parity for electric trucks typically reached after approximately 220,000–250,000 kilometres (assuming 100-120k km/y). Combined with the favourable tolling framework and other supportive policies, these measures create a compelling economic case for fleet electrification in the Netherlands.

Sweden

Sweden's geography and population distribution create a mixed logistics landscape, with a combination of long-haul corridors connecting major industrial regions and lower-density routes in the north. The country benefits from structurally low electricity prices, which make the operational costs of electric trucks highly competitive, particularly for depot-based charging. Sweden's comparatively high electrification rate of 9.5% is primarily visible in and around the countries' economic hubs and their seaports, where shorter, more regular transport routes dominate and depot charging offers clear operational advantages. Long-distance corridors, however, still see only limited uptake of eHDVs.

While Sweden does apply a CO_2-differentiated road toll, giving electric trucks up to a 75% discount compared with diesel, the absolute toll levels remain relatively low, meaning the incentive has limited impact on accelerating electrification. In addition, the relatively low price of diesel (including taxes) reduces the operational cost advantage of electric trucks, making electrification less financially compelling on long-haul routes. The absence of substantial tolling driver and comparatively low diesel price form a major barrier to achieving a fully competitive TCO. Under current cost assumptions, the TCO gap stands at approximately €0.11 per kilometre and is expected to narrow to about €0.04 by 2027, driven primarily by declining purchase prices for eHDV.

As a result, Sweden reaches a TCO positive case for long-haul applications earlier only when operators adopt a charging strategy that favours depot charging or when fleets operate across two or more shifts. To accelerate the transition for longhaul operations, Sweden could meaningfully enhance the financial case by favouring distance and emissions-based tolling mechanisms for eHDVs similar to those implemented in for example Germany (full exemption). Such measures would directly shift operating costs and help unlock TCO-positive longhaul applications earlier in the uptake curve. The existing Klimatpremie, which provides a subsidy of up to 25% of the purchase value of an eHDV, already delivers a TCO reduction of approximately €0.08 per kilometre, enough to close the remaining TCO gap by around 2027.

Finally, Sweden already benefits from a relatively high availability of public charging infrastructure, with deployment already ahead of current fleet demand. While this ensures reliable access, there is a risk of overcapacity at this stage, meaning further infrastructure investments need to be matched with stronger market demand. Stimulating fleet electrification through additional policy measures will be critical to justify continued infrastructure build-out and enable long-term growth.

Policy priorities to accelerate the European eHDV market

The European transition to electric heavy-duty transport is entering a decisive early deployment phase. As demonstrated in the preceding chapters, eHDVs are now commercially available across a wide range of vehicle segments and applications, including long-haul operations, ADR transport, and lowliner configurations. At the same time, the first wave of dedicated public charging hubs is being deployed along key freight corridors across Europe. An increasing number of logistics companies are already demonstrating that electric trucks can operate reliably and efficiently in day-to-day freight operations.

At the same time, the analysis in this report highlights a highly uneven market landscape across Europe. The country comparison and TCO deep dives show that a limited group of frontrunner countries has successfully created favourable conditions for early adoption through a coherent combination of demand-side incentives, operational cost advantages, and infrastructure availability. In many other Member States, however, the enabling framework remains incomplete or insufficiently implemented.

Without further policy alignment, the European market risks developing at multiple speeds, with leading countries accelerating rapidly while others lag behind. This fragmentation would not only slow the decarbonisation of the transport sector but also negatively affect cross-border freight operations, where the absence of consistent enabling conditions undermines operational feasibility and investment confidence. It would weaken the development of a truly integrated European electric freight market and create uncertainty for fleet operators, vehicle manufacturers, and infrastructure investors alike.

The evidence presented throughout this report, both at aggregate level and in the detailed country assessments, clearly shows that policy design directly shapes market outcomes. Moving from early adoption to mass-market deployment will therefore require a coordinated and comprehensive policy approach that activates demand, strengthens operational incentives, accelerates infrastructure rollout, and maintains long-term regulatory predictability.

1. Activating the next wave of vehicle adoption
Evidence presented in this report shows a clear correlation between recent market growth and the availability of national demand-side policies. Countries with well-designed support frameworks have succeeded in accelerating the first wave of eHDV deployment and are beginning to build the critical mass required for a self-reinforcing market dynamic.

In the short term, direct purchase subsidies remain one of the most effective tools to activate early fleet adoption. These instruments help address the most significant barrier currently facing fleet operators: the higher upfront investment cost of electric trucks compared with diesel vehicles. Targeted CAPEX support reduces the initial financial risk and enables early adopters to deploy vehicles at scale while vehicle manufacturing costs continue to decline.

To ensure that the transition is accessible to the entire logistics sector, these subsidies should be complemented by favourable financing instruments, such as guarantee-backed loan facilities or leasing support schemes. This is particularly important for small and medium-sized transport companies, which represent a large share of the European freight sector and often face more limited access to capital. Ensuring that SMEs can participate in the transition will be critical for achieving large-scale fleet electrification.

At the same time, demand-pull measures should be strengthened. Encouraging zero-emission transport procurement by shippers, large logistics buyers, and public authorities can unlock significant downstream demand. These mechanisms provide the market certainty fleet operators need to commit to large-scale investments in electric vehicles.

2. Strengthening operational incentives through CO_2-based tolling
Operational cost incentives are a second critical pillar of the transition. As demonstrated in the country analysis, CO_2-differentiated road tolling is one of the most effective levers for improving the total cost of ownership of electric trucks - particularly in long-haul operations.

The Eurovignette Directive already provides a clear European framework for such systems. However, its full and consistent implementation across Member States remains incomplete. Countries that go beyond minimum differentiation levels achieve significantly stronger TCO improvements and faster market uptake.

Accelerating the harmonised implementation of CO_2-based tolling across Europe should therefore be a priority. A consistent and ambitious approach would not only improve operating economics but also provide clear, predictable, and long-term signals for fleet investment decisions across borders.

3. Accelerating the rollout of dedicated eHDV charging hubs
Alongside vehicle adoption, the rapid expansion of charging infrastructure remains a central requirement for the next phase of market growth, particularly for long-haul in large countries and cross-border transport.

As highlighted in the previous chapters, infrastructure availability is already growing in some leading markets, while in others it remains a large bottleneck. The key challenge is not only deployment, but also the financing risk associated with early-stage utilisation levels. Charging hubs require significant upfront investment, while demand builds gradually over time.

To address this challenge, risk mitigation instruments will play an essential role in unlocking private capital. Public guarantee schemes can significantly reduce downside risk for lenders and infrastructure investors, thereby improving the bankability of charging infrastructure projects. Member State and the EU should consider establishing guarantee-backed financial facilities that support the development of charging hubs during this early market phase.

At the same time, accelerating deployment will require faster and more coordinated implementation on the ground. Simplified and standardised permitting procedures, faster grid connection processes, and improved coordination between infrastructure developers and grid operators are crucial to reduce project timelines. Greater transparency on future grid capacity and connection timelines will enable more efficient investment decisions and optimise site selection.

Given the inherently international nature of freight transport, cross-border coordination is equally important. Initiatives such as the Clean Transport Corridor Initiative can support harmonised technical standards, aligned infrastructure planning, and streamlined regulatory processes. Ensuring that infrastructure development is aligned with key freight corridors will be essential to create a truly European charging network.

4. Maintaining stable and credible regulatory frameworks
Finally, the transition to electric freight requires long-term regulatory certainty. As highlighted in the TCO analysis, European instruments such as ETS II will play a critical role in structurally improving the competitiveness of electric trucks by internalising the cost of carbon.

Even where short-term impacts appear limited, these instruments send essential long-term signals to the market. Any weakening or delay risks undermining investor confidence and slowing the transition. A stable and predictable policy framework is therefore indispensable to support both vehicle deployment and infrastructure investment at scale.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Final reflection

The transition to electric heavy-duty transport in Europe is now a question of policy execution and market scaling. The evidence presented in this report shows that where the right combination of measures is in place, the market responds.

The challenge ahead is to replicate and scale these conditions across all Member States, ensuring that the European market develops in a coherent and coordinated manner. By aligning demand-side support, operational incentives, infrastructure deployment, and regulatory certainty, Europe can move from early adoption to a self-sustaining, mass-market transition towards electric freight by 2030 and beyond.

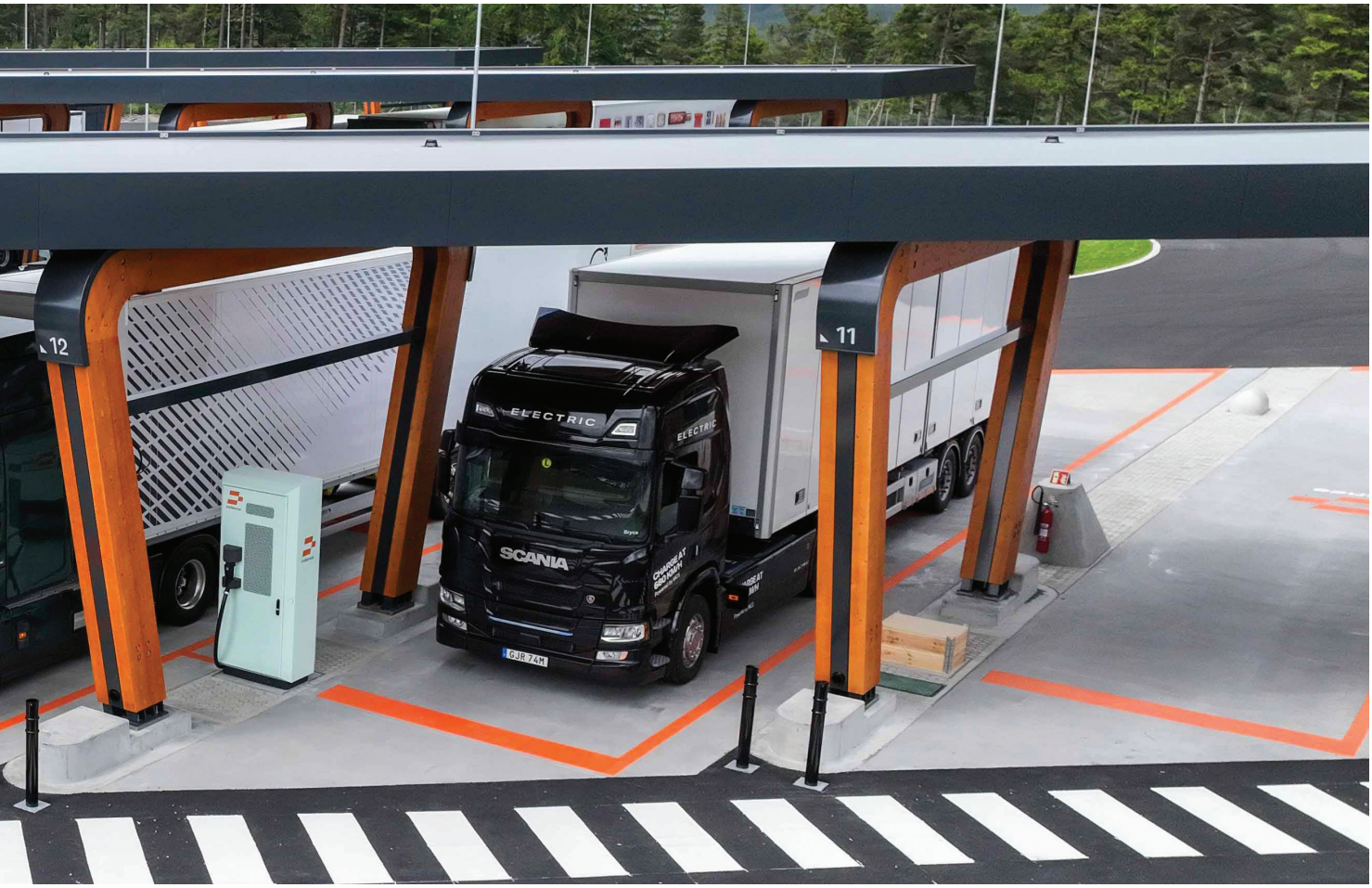
Annex

This annex provides a more detailed, qualitative assessment of national policy measures and how they shape eHDV market outcomes. The analysis complements the high-level quantitative evaluation presented in the main report. It focuses exclusively on vehicle-related policy instruments and does not cover infrastructure support (such as depot or public charging subsidies).

It covers measures aimed at reducing the capital expenditure (CAPEX) of eHDVs. This includes the structure and scope of purchase subsidy schemes, which vary significantly across countries and strongly influence the speed and scale of early adoption. Complementary instruments, such as reductions or exemptions in registration taxes, are also considered, as they further lower the initial investment burden for fleets. Preferential loan schemes are included as well, reflecting their role in bridging the financing gap until vehicle costs decline through economies of scale.

On the operating expenditure (OPEX) side, the analysis focuses on tolling incentives, including CO_2-differentiated or full/partial toll exemptions for eHDVs, which can substantially improve the total cost of ownership over the vehicle's operational lifetime. Additional policy instruments assessed include GHG quota schemes derived from the Renewable Energy Directive (RED III), which allow eHDV fleet operators to generate tradable emission reduction credits that can be sold to fuel suppliers or other obligated parties. Prices for these credits are market-driven and vary based on supply and demand dynamics. In addition, these mechanisms can indirectly benefit logistics operators by contributing to more competitive public charging prices, as charge point operators can monetise these credits and reflect part of this value in lower charging tariffs.

Finally, the assessment considers other enabling measures, such as zero-emission vehicle quotas for shippers and establishment of low- or zero-emission zones for freight.



Country	Grants	Tax advantages	Favourable loans	Tolling differentiation	GHG credit system for logistics	Green / zero-emission zones
Austria	ENIN program supporting up to 80% of price premium for eHDVs (€365m budget; active until ~2026).	Accelerated depreciation and electricity tax benefits for EV charging.	Green investment financing via Austrian development bank (AWS).	Mileage-based CO_2-differentiated truck toll since 2024, lower tariffs (75%) for ZEVs.	Yes – GHG quota system introduced 2023 for fleet operators and public charging.	Limited national scheme; some city logistics electrification initiatives.
Belgium	No national subsidies; Flanders Ecologiepremie+ supported eHDVs up to ~€160k per vehicle; ran until 01 Jan 2026 (phased out).	100% corporate tax deductibility for ZEVs until 2026, then gradually decreasing.	No dedicated national loan program.	Euro-class differentiated toll (Viapass); CO_2 differentiation (~€c25/km delta between eHDV and diesel Euro VI) to be introduced on 01 July 2026.	Yes – GHG quota system introduced for public charging.	Low-emission zones in Antwerp, Brussels and Ghent.
Denmark	DKK 160m allocated for 2026 to support the purchase and leasing of ZEVs and the establishment of charging infrastructure. Individual operators can apply for up to DKK 4m per company.	Reduced registration tax for ZEVs.	Limited green financing through Danish Green Investment Fund.	CO_2- differentiated truck toll introduced 2025, with lower tariffs for ZEVs (~ 85% discount). Delta with diesel will increase over the years.	RED III transposition happened mid 2025; GHG quota system not yet operational.	Limited city-level logistics pilot projects.
France	Support mainly via CEE certificate market funding electrification projects. Tractors can benefit from around €60k, and depot charging can also benefit from support.	Accelerated depreciation and reduced electricity taxation in some schemes.	Some support through Bpifrance green transition financing, but no specific national loan scheme for eHDVs.	No national CO_2-differentiated truck toll yet as existing highway concession contracts would need to be amended.	Yes – GHG quota system introduced for public charging.	Low-emission zones mandatory in major cities.
Germany	Former KsNI subsidy covered up to 80% of price premium of zero-emission trucks - 8000 eHDVs were supported.	Vehicle tax exemption for ZEVs until 2035. Annual savings of €500-€1,000 compared to diesel HDVs. Special depreciation: in the year of purchase, 75% of the acquisition costs can be written off.	Green loans via KfW development bank.	Full toll exemption for ZEVs until mid 2031 ("LKW-Maut"); cost advantage compared to diesel HDV 26-32 €c/km.	Yes – GHG quota system introduced in 2022 for fleet operators and public charging; payouts typically €3,000-€4,000 annually per eHDV.	Low-emission zones in several cities.
Italy	Currently no subsidy schemes active for eHDVs. Italy has approved a multiyear envelope for fleet renewal with operational modalities will be defined later.	Full exemption of annual vehicle tax (bollo) for 5 years, followed by a 75% reduction for the following years; longer and permanent full exemptions in some regions.	No dedicated national loan program.	No national CO_2 truck toll yet as existing highway concession contracts would need to be amended.	Yes – GHG quota system introduced for public charging.	Zero-emission logistics zones in ~30 cities from 2025.
Netherlands	AanZET subsidy covering up to ~€115k per truck; program runs until at least 2027 and soon to be funded by the income from the new road toll.	Motor vehicle tax exemption for ZEVs until ~2029.	Motor vehicle tax exemption for ZEVs until ~2029.	New CO_2-differentiated truck toll to be introduced on 01 July 2026, lowest tariff for ZEVs (~ 80 % discount).	None.	Zero-Emission Logistics Zones in ~30 cities from 2025.

Country	Grants	Tax advantages	Favourable loans	Tolling differentiation	GHG credit system for logistics	Green / zero-emission zones
Norway	Local grants for eHDVs (covering up to 60% of price premium).	Strong tax advantages: No purchase tax and reduced VAT for ZEVs.	Loans via national climate fund Enova.	Significant road-toll discounts for zero-emission trucks.	None.	Several cities prioritize zero-emission logistics access.
Poland	NFOŚiGW program with purchase subsidy up to 60% of the price premium; capped at €175k for N3 vehicles.	eHDVs exempt from excise duty and registration tax until 2029, with full VAT reclaim and higher depreciation factors (up to €53k).	NFOŚiGW offers low-interest preferential loans or grant-loan hybrids for eHDVs.	No toll differentiation nationally.	None.	Clean transport zones in cities such as Warsaw, Kraków. Old diesel banned and eHDVs with unrestricted 24/7 access.
Portugal	None.	No tax benefits.	Financing through national climate funds but no eHDV-specific program.	No toll differentiation nationally.	None.	Low-emission zones in Lisbon and Porto.
Spain	None.	Annual vehicle taxes set by municipalities. Typically reductions of 50 % - 100 % for 3-5 years.	ICO Verde can finance sustainable transport / green transition projects, but no eHDV specific program.	No national CO_2 truck toll yet as existing highway concession contracts would need to be amended.	None.	Low-emission zones mandatory in cities >50k inhabitants (from 2023).
Sweden	Subsidy covering price premium for eHDV: 30 % for large, 40 % for mid-sized and 50 % for small companies (cap at 25 % of total price for eHDV).	Reduced vehicle tax and electricity tax advantages for EV charging.	Financing via Swedish Energy Agency programs.	CO_2-differentiated toll system that takes into account Euro-class and CO_2 efficiency. EHDVs benefit from at least a 50% discount on road tolls and are expected to see up to 75% reductions as the system matures. Delta is too small though to really be a driver.	None.	Some cities piloting zero-emission freight zones.
Switzerland	Several small regional subsidy programs.	Some regional / cantonal tax benefits for EVs.	Green loans through national climate programs.	LSVA heavy-vehicle toll strongly emissions-differentiated; eHDVs fully exempt from highway tolls until end of 2028; ~ 2,6 cent / ton km advantage compared to diesel; from 2029 a 15 % reduction applies for eHDVs.	None.	Urban freight electrification pilots.
United Kingdom	Plug-in Truck Grant up to £120k for large trucks (>26t); program extended to 2026, but limited to £18m. In march 2026 announcement of new grant program with up to £81k per eHDV.	100% first-year capital allowance for ZEVs.	Limited dedicated loan schemes.	Currently no CO_2 toll.	None.	Clean air and ultra low emission zones in cities such as London.

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